

What is claimed is:

1. A washing and drying machine, comprising:

a water tub elastically supported in a housing;

5 a rotary drum for holding clothes, the rotary drum being rotatably mounted in the water tub;

a heat pump including a compressor for compressing coolant, a heat radiator for dissipating heat of the compressed coolant, a throttle valve for lowering a pressure
10 of the coolant, a heat absorber for allowing the coolant to absorb heat from surroundings, a pipework for allowing the coolant to circulate through the compressor, the heat radiator, the throttle valve and the heat absorber, and an air guide duct for guiding air to the heat absorber and the
15 heat radiator;

an air passageway provided to the water tub for allowing the air to flow into the rotary drum;

a blower for forcing the air heated by the heat radiator to flow through the air passageway into the rotary
20 drum; and

a flexible connection member for connecting the air passageway to the air guide duct.

2. The machine of claim 1, further comprising an air
25 exhaust duct for allowing the air to flow out of the water tub, wherein the air guide duct includes a heat absorber

duct for allowing the air to flow through the heat absorber and a heat radiator duct for allowing the air to flow through the heat radiator, the air passageway serves as an air supply duct for allowing the air to flow into the rotary drum, the air supply duct being connected to an outlet of the heat radiator duct through the flexible connection member, and the air exhaust duct is connected to an inlet of the heat absorber duct through another flexible connection member.

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3. The machine of claim 1, wherein the flexible connection member is made of a flexible hose.

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4. The machine of claim 1, further comprising a flexible air exhaust hose for allowing the air to flow out of the water tub, wherein the air guide duct includes a heat absorber duct for allowing the air to flow through the heat absorber and a heat radiator duct for allowing the air to flow through the heat radiator; the flexible connection member is a flexible air supply hose, the flexible air supply hose and the flexible air exhaust hose extending in a same direction; the flexible air supply hose is connected to an outlet of the heat radiator duct; and the flexible air exhaust hose is connected to an inlet of the heat absorber duct.

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5. The machine of claim 4, wherein the flexible air supply hose and the flexible air exhaust hose extend parallel with each other.
- 5 6. The machine of claim 1, wherein the flexible connection member is disposed under the water tub.
7. The machine of claim 1, wherein the flexible connection member is disposed on the rear side of the water
10 tub.
8. The machine of claim 1, wherein the flexible connection member is disposed above the water tub.
- 15 9. The machine of claim 1, wherein the flexible connection member is disposed beside the water tub.
10. The machine of claim 1, wherein the flexible connection member is removably attached between the air
20 passageway and the air guide duct.
11. The machine of claim 10, wherein the flexible connection member is removably attached to the air guide duct.
- 25 12. The machine of claim 10, wherein the flexible

connection member is removably attached to the air passageway.

13. The machine of claim 1, wherein the flexible connection member is expanded and contracted in a direction perpendicular to a rotational axis of the rotary drum.

14. The machine of claim 1, wherein the flexible connection member is expanded and contracted in a direction parallel to a rotational axis of the rotary drum.

15. The machine of claim 1, wherein the heat pump is disposed under the water tub.

16. The machine of claim 15, wherein the air guide duct is provided with a heat absorber duct for allowing the air to flow through the heat absorber and a heat radiator duct for allowing the air to flow through the heat radiator, the heat absorber duct and the heat radiator duct communicating with each other and being horizontally arranged so that the air flows straight therethrough.

17. The machine of claim 15, wherein the air guide duct is provided with a heat absorber duct for allowing the air to flow through the heat absorber and a heat radiator duct for allowing the air to flow through the heat radiator, the heat absorber duct being arranged in a manner that the air flows

downwards from an upper portion of the heat absorber to a lower portion of the heat absorber, and wherein a water exhaust opening for draining condensation is formed in a lower portion of the heat absorber duct.

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18. The machine of claim 15, further comprising a mounting base for supporting the housing at a certain height, the mounting base accommodating therein the heat pump.

10 19. The machine of claim 1, wherein the blower is disposed in a corner portion where a top wall and a sidewall of the housing join together above the water tub.

15 20. The machine of claim 1, further comprising a filter for removing foreign matter from the air, the filter disposed in an upstream of the air flowing in the heat absorber duct.

20 21. The machine of claim 1, wherein the air guide duct is provided with a heat absorber duct for allowing the air to flow through the heat absorber and a heat radiator duct for allowing the air to flow through the heat radiator, and wherein water supplied into the water tub during a washing operation is not remained in the heat absorber duct or the
25 heat radiator duct after the completion of the washing operation.

22. The machine of claim 21, further comprising an air exhaust duct for allowing the air to flow out of the water tub, the air exhaust duct being connected to an inlet of the air guide duct, wherein a portion of the air passageway and/or a portion of the air exhaust duct are/is located at a level higher than a water level of the water in the water tub.
23. The machine of claim 21, wherein the air guide duct is provided with a water exhaust opening for allowing water therein to be drained.
24. The machine of claim 1, wherein the coolant includes a CO₂ gas as a main constituent.
25. The machine of claim 1, wherein a rotational axis of the rotary drum is disposed horizontal.
26. The machine of claim 1, wherein a rotational axis of the rotary drum is disposed vertical.
27. A washing and drying machine, comprising:
a water tub elastically supported in a housing;
a rotary drum for holding clothes, the rotary drum being rotatably mounted in the water tub;

a heat pump including a compressor for compressing coolant, a heat radiator for dissipating heat of the compressed coolant, a throttle valve for lowering pressure of the coolant, a heat absorber for allowing the coolant to
5 absorb heat, a pipework for allowing the coolant to circulate through the compressor, the heat radiator, the throttle valve, the heat absorber and an air guide duct for guiding air to the heat absorber and the heat radiator;

a blower for forcing the air heated by the heat
10 radiator to flow through an air passageway provided to the water tub into the rotary drum;

an air supply duct for allowing the air to flow into the rotary drum; and

an air exhaust duct for allowing the air to flow out
15 of the water tub,

wherein the air guide duct is provided with a heat radiator duct for allowing the air to flow through the heat radiator of the heat pump and a heat absorber duct for allowing the air to flow through the heat absorber of the
20 heat pump; the air passageway is connected to an outlet of the heat radiator duct through a flexible connection member; and the air exhaust duct is connected to an inlet of the heat absorber duct through another flexible connection member.

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28. A washing and drying machine, comprising:

a water tub elastically supported in a housing;

a rotary drum for holding clothes, the rotary drum being rotatably mounted in the water tub;

5 a heat pump including a compressor for compressing
coolant, a heat radiator for dissipating heat of the
compressed coolant, a throttle valve for lowering pressure
of the coolant, a heat absorber for allowing the coolant to
absorb heat, a pipework for allowing the coolant to
10 circulate through the compressor, the heat radiator, the
throttle valve and the heat absorber, and an air guide duct
for allowing air to flow through the heat absorber and the
heat radiator of the heat pump;

an air passageway provided to the water tub for
allowing the air to flow into the rotary drum; and

15 a blower for forcing the air heated by the heat
radiator to flow through the air passageway into the rotary
drum,

wherein the air guide duct is connected to the air
passageway through a flexible connection member, and water
20 supplied into the water tub during a washing operation is
not remained in the air guide duct after the completion of
the washing operation.

29. A washing and drying machine, comprising:

25 a water tub elastically supported in a housing;

a rotary drum for holding clothes, the rotary drum

being rotatably mounted in the water tub;

5 a heat pump including a compressor for compressing
coolant, a heat radiator for dissipating heat of the
compressed coolant, a throttle valve for lowering pressure
of the coolant, a heat absorber for allowing the coolant to
absorb heat, a pipework for allowing the coolant to
circulate through the compressor, the heat radiator, the
throttle valve and the heat absorber, and an air guide duct
for allowing air to flow through the heat absorber and the
10 heat radiator of the heat pump;

an air passageway provided to the water tub for
allowing the air to flow into the rotary drum; and

15 a blower for forcing the air heated by the heat
radiator to flow through the air passageway into the rotary
drum,

wherein the air guide duct is connected to the air
passageway through a flexible connection member, and the
flexible connection member is removably attached between the
air guide duct and the air passageway.

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